

PROCESS AND AQUEOUS SOLUTION FOR PHOSPHATISING METALLIC SURFACES

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Inventor: KOLBERG THOMAS (DE); SCHUBACH PETER (DE)
Applicant: METALLGESELLSCHAFT AG (DE)
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A process is disclosed for preparing an aqueous zinc phosphatizing solution for producing phosphate coatings on metallic surfaces of iron, steel, zinc, zinc alloys, aluminum or aluminum alloys, which comprises:(1) 0.3 to 5 g Zn²⁺/1;(2) 0.1 to 3 g nitroguanidine/1 as an accelerator;(3) phosphate where the acid value is 0.03 to 0.3 indicating the ratio of free acid, calculated as free P₂O₅ to the total P₂O₅, and the weight ratio of Zn to P₂O₅ is 1:5 to 1:30; and(4) balance water, where the solution produces finely crystallite phosphate coatings in which the crystallites have a maximum edge length <15 µm, which comprises the steps of:(a) preparing a concentrate comprising the Zn²⁺ and the phosphate in water;(b) supplying additional water to the concentrate so that the Zn²⁺ concentration in the phosphatizing solution is 0.3 to 5 g/1;(c) preparing a stabilized suspension consisting essentially of 100 to 300 g of nitroguanidine/1, 10 to 30 g of sheet silicate/1 as stabilizer and the balance water by suspending the sheet silicate in deionized water and stirring the nitroguanidine into the suspension; and(d) introducing the stabilized suspension into the phosphatizing solution so that the nitroguanidine concentration in the phosphatizing solution is 0.1 to 3 g nitroguanidine/liter.

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